DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1x.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012803
Date Inspected: 25-Mar-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 630
OSM Departure Time: 1500
Location: Job Site

CWI Name: Bernie Docena

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☐ No	☑ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girder

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

QA randomly observed ABF/JV qualified welders Rory Hogan (ID #3186) and Jeremy Dolman continue perform CJP groove (splice) back welding fill pass on Orthotropic Box Girder (OBG) L1E/L2E plate 'D1'. The welders were observed welding in the 4G (overhead) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-4. The welder was using a track mounted welder holder assembly that is remotely controlled. The joint being welded has the backing bar gouged using the Esab Plasma Arc machine and was ground smooth. The splice joint was preheated to greater than 200 degree Fahrenheit prior welding and the vicinity was properly protected from wind.

During welding, ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder. The parameter readings taken during welding were 256 amperes, 23.0 volts with travel speed of 190 mm per minute travel speed which are deemed acceptable to contract specifications.

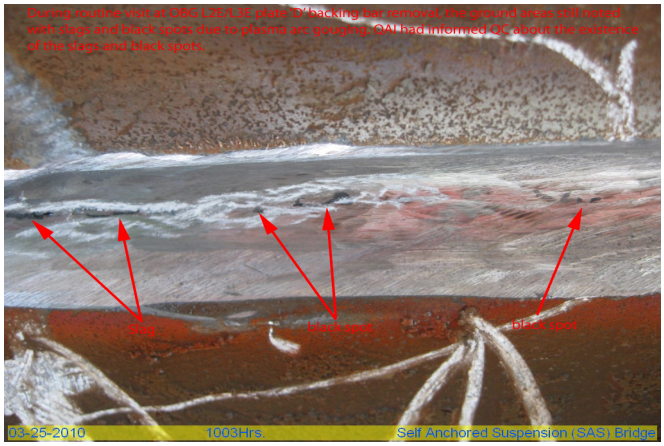
During welding on the fill pass of the back welding of the joint splice on location mentioned above, the 10 inches long welded were noted of excessive porosity. Due to the porosity that existed throughout the whole length welded, the welder started another weld at different location (2nd) within joint splice plate D1. Again, the welder welded around 16 inches long and noted same result of excessive porosity throughout the whole length of the weld. After

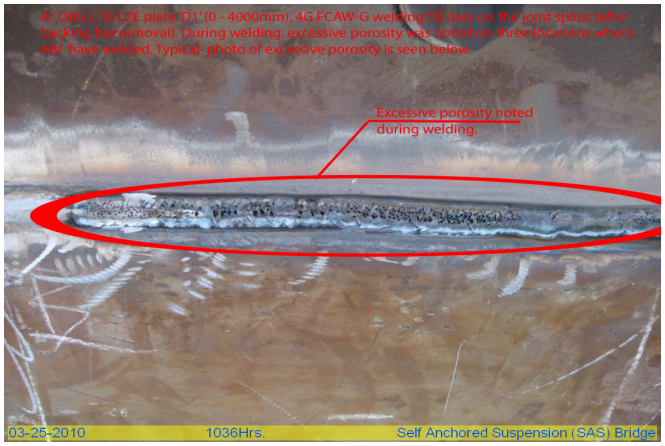
having two locations of excessive porosity, the two welders stopped welding and started grinding the porosity. To have better access to grind the porosity, ABF personnel temporarily removed the heater blankets. In doing this, the preheat temperature of more than 200 degree Fahrenheit during welding went down to just 85 degree Fahrenheit after grinding.

ABF personnel put back the heater blanket and after attaining a preheat temperature of more than 200 degree Fahrenheit, the welder started welding another location (3rd) within the joint splice plate D1. Again, the welder welded around 12 inches long and noted same result of excessive porosity throughout the whole length of the weld. QA observed that all three locations that the welder welded have excessive porosity throughout the length of the welds.

QAI also randomly observed ABF personnel perform back gouging of backing bar at OBG L1E/L2E plate 'C' using a track mounted Esab plasma arc machine. Per ABF personnel, gouging of the backing bar will take multiple passes before the backing bar would be totally removed. In another OBG location, OBG L2E/L3E plate 'D', grinding of the gouged backing bar removal still in progress. Measured depth of the gouged and ground groove of the splice joint was 6.0mm.

After all the observations mentioned above, QA left the job site and went to job site office to write incident report concerning the loss of preheat maintenance on weld joint being welded at OBG L1E/L2E plate 'D1'.





WELDING INSPECTION REPORT

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Summary of Conversations:

As stated above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Mohammad Fatemi (916) 227-5298, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer